

**REMARKS**

In the Final Office Action<sup>1</sup>, the Examiner took the following actions:

rejected claims 10-13, 15, 17, and 19 under 35 U.S.C. § 112, first paragraph;

rejected claims 4, 16, 17, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent no. 7,246,058 B2 to Burnett ("*Burnett*") in view of "Selected Topics in Surface Electromyography for Use in the Occupational Setting: Expert Perspectives," U.S. Department of Health and Human Services, 1992, Publication No. 91-100 ("*CDC*");

rejected claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable in view of *Burnett*, *CDC*, and U.S. Pat no. 4,654,883 to Iwata ("*Iwata*"); and

rejected claims 5-15 under 35 U.S.C. § 103(a) as being unpatentable in view of *Burnett*, *CDC*, and U.S. Pat no. 5,729,694 to Holzrichter et al. ("*Holzrichter*").

By the present amendment Applicant cancels claims 2-16 without prejudice or disclaimer and adds new claims 21-35. Claims 17 and 19-35 are now pending. The rejections of claims 2-16 are rendered moot by the cancellation, however, inasmuch as the rejections of claims 2-16 apply to new claims 19-35 and in order to advance prosecution Applicant traverses the rejections as follows.

**I. Rejection of Claims 10-13, 15, 17, and 19 under 35 U.S.C. §112, first paragraph**

Page 3 of the Office Action states that "the specification does not clearly disclose what is the frequency range for soft tissue 'non-audible sounds' and 'audible sounds' to define non-audible sounds and 'audible sounds' and what is age the second person will

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Office Action.

be." Applicant respectfully disagrees and assert that claims 17 and 19 are fully supported by the specification.

The MPEP states:

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention . . . the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("**The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.**"). **A patent need not teach, and preferably omits, what is well known in the art.** *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991) . . . Any part of the specification can support an enabling disclosure, even a background section that discusses, or even disparages, the subject matter disclosed therein. *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 77 USPQ2d 1041. See M.P.E.P. § 2106.04 (emphasis added).

Applicant submits that one reasonably skilled in the art, in view of at least the disclosure from page 9, line 9 to page 10, line 10 and page 22, lines 11-17 of the originally filed specification, would understand that the claimed "sounds generated by a first person which are non-audible to a second person" are non-audible vibrations caused by the movement of vocal cords of a first person as the first person moves his vocal cords to speak without generating an audible sound that a second person of any age sitting near the first person can hear.

For example, page 9 lines 9-24 of the specification disclose "the non-audible murmur need not be heard by surrounding people. In this connection, the non-audible

murmur is different from a whisper intended to positively have surrounding people hear it. The present invention is characterized in that the non-audible murmur is sampled through a microphone utilizing flesh conduction instead of air conduction."

Accordingly, the elements of claims 17 and 19 are fully supported by the specification, and Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 17 and 19 under 35 U.S.C. § 112, first paragraph.

With respect to the rejection of claims 10-13 under 35 U.S.C. § 112, first paragraph, Applicant submits that one reasonably skilled in the art, in view of at least the disclosure from page 39, line 22 to page 40, line 8 of the originally filed specification, will be able to: modulate a "signal into sound audible to the second person;" "convert the sounds into sounds as produced by regular vibration of vocal cords;" apply "fundamental frequency of vocal cords to the sounds to convert the sounds into sounds as produced by regular vibration of vocal cords;" and convert "a spectrum of the sounds not involving regular vibration of vocal cords into a spectrum of sound as produced by regular vibration of the vocal cords," without undue experimentation.

For example, page 38, line 23 to page 39, line 26 of the specification discloses:

Now, the modulation of a sound will be described. The modulation of a sound refers to a change in the auditory tonality of a sound, that is, a change in sound quality. In the recent phonetic research, the term morphing is often used to refer to the modulation. The term morphing is used as a general term for, for example, techniques for increasing and reducing the fundamental frequency of a sound, increasing and reducing the formant frequency, continuously changing a male voice to a female voice or a female voice to a male voice, and continuously changing one man's voice to another man's voice.

Various methods have been proposed as morphing techniques. STRAIGHT, proposed by Kawahara (Kawahara

et al., Shingaku Giho, EA96-28, 1996), is known as a representative method. This method is characterized in that parameters such as the fundamental frequency (FO), a spectrum envelope, and a speech speed can be independently varied by accurately separating sound source information from vocal tract information . . . . Moreover, the appropriate use of the fundamental frequency enables the non-audible murmur to be modulated into amore audible sound using a method such as STRAIGHT, previously described.

Accordingly, the elements of claims 10-13 are fully supported by the specification.

With respect to the rejection of claim 15 under 35 U.S.C. § 112, first paragraph, Applicant submits that one reasonably skilled in the art, in view of at least the disclosure from page 35, line 10 to page 38, line 9 of the originally filed specification, will be able to "execute speech recognition utilizing an acoustic model of at least one of the sounds non-audible to the second person," without undue experimentation.

Accordingly, the elements of claim 15 are fully supported by the specification.

## **II. Rejection of Claims 17, 19, and 20 under 35 U.S.C. § 103(a)**

Applicant respectfully traverses the rejection of claims 17, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable in view of *Burnett* and *CDC*. A *prima facie* case of obviousness has not been established.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See *M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007)*. Furthermore, "[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but

whether the claimed invention as a whole would have been obvious." *M.P.E.P.* § 2141.02(l), internal citations omitted (emphasis in original).

Independent claim 17 recites a device for sampling sounds including "a positioning structure coupled to the microphone, the positioning structure positioning the microphone on a surface of skin over a sternocleidomastoid muscle below a mastoid of the first person so as to detect vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin." *Burnett* and *CDC* do not teach or suggest at least these elements of claim 17, and does not render claim 17 obvious.

*Burnett* discloses "[p]lacing the microphones Mic 1 and Mic 2 in a linear array with the mouth on the array midline," (Figure 7, column 7, lines 53-55) where "[t]he sensor detects human tissue motion associated with the closure of the vocal folds, so the acoustic signal produced by the closure of the folds is highly correlated with the closures," (column 5, lines 26-29). Thus, the sensor taught by *Burnett* is placed in a linear array with the mouth to detect acoustic signals produced by vocal folds. Detecting acoustic signal produced by vocal folds does not constitute "to detect vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin," (emphasis added) as recited in claim 17, because the sensor in *Burnett* does not detect non-audible vibrations "transmitted **through flesh** of the first person to the **sternocleidomastoid muscle**."

Further, Mic 1 and Mic 2 of *Burnett* do not constitute Applicant's claimed "microphone" because as is illustrated in Figure 4 and Figure 5 of the application claim

17 includes a single "microphone . . . to detect vibrations non-audible to the second person," while *Burnett* requires the placement of two microphones to detect acoustic signals.

On page 7 of the Office Action, the Examiner correctly states that "*Burnett* does not explicitly teach the positioning structure positioning the microphone on a surface of skin over a sternocleidomastoid muscle below a mastoid of the person." Instead, the Examiner relies on *CDC* to overcome this deficiency of *Burnett*. This, however, is not correct.

*CDC* discloses "[s]urface electromyography (EMG) is a technique whereby voltage-measuring electrodes attached to the surface of the skin are used to detect and/or infer various phenomenal relating to muscular contractions." (Page vi, first paragraph). Moreover, on pages 27 and 28, and Figures 3-4A-F and 3-5A-P *CDC* discloses various positions in which a voltage measuring electrode may be attached to the surface of the skin. The voltage-measuring electrodes of *CDC*, however, do not constitute the claimed "microphone" because the electrodes measure electrical potentials generated by muscle cells based on electromyography signals and do not "detect vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin," as recited in claim 17 (emphasis added).

Moreover, *Burnett* teaches away from placing a microphone over a sternocleidomastoid muscle. In column 5, lines 16-21 *Burnett* states "there are sensor locations (such as the jaw or back of the neck) where speech production can be detected but where the signal may have incorrect or distorted time-based information."

That is, they may not have well defined elements in time that will match with the acoustic waveform" (emphasis added). Thus, even if the teachings of *Burnett* and *CDC* are considered in combination, such a combination does not teach, suggest, or render obvious "a positioning structure coupled to the microphone, the positioning structure positioning the microphone on a surface of skin over a sternocleidomastoid muscle below a mastoid of the first person so as to detect vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin," as recited in claim 17.

Here, no *prima facie* case of obviousness has been established for at least the reason that, the Final Office Action has not given patentable weight to all the elements of claim 17. Accordingly, for at least the above reasons, the Final Office Action has not established a *prima facie* case of obviousness of claim 17. Thus, the rejection of claim 17 under 35 U.S.C. § 103(a) should be withdrawn. Claim 20 depends from claim 17 and is thus also allowable over *Burnett* and *CDC* for at least similar reasons as claim 17.

Independent claim 19, though of different scope from claim 17, recites elements similar to those of claim 17 and is thus also allowable over *Burnett* and *CDC* for reasons similar to those presented above for claim 17. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is therefore respectfully requested and deemed appropriate.

### **III. Rejection of Claims 2 and 3 under 35 U.S.C. § 103(a)**

The rejection of claims 2 and 3 is rendered moot by their cancellation.

**IV. Rejection of Claims 5-15 under 35 U.S.C. § 103(a)**

The rejection of claims 5-15 is rendered moot by their cancellation.

**V. New Claims 21-35**

New claims 21-35 are allowable based on their dependency on independent claim 17.

**CONCLUSION**

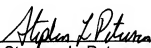
In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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